

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: METALUX

Report Number: P1431883

Luminaire Tested: EHBR1-54-UNV-N-L840

Issue Date: 3/13/2026

Test Information

Test Method: LM-79-2019
Report Number: P1431883
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G3-2601-654-3)
Test Lab: INNOVATION CENTER
Issue Date: 3/13/2026
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: METALUX
Catalog Number: EHBR1-54-UNV-N-L840
Description: Elevate Round Highbay at, 54000 lumens, 4000K 80CRI LEDs with N lens
Light Source: -
Ballast/Driver: -

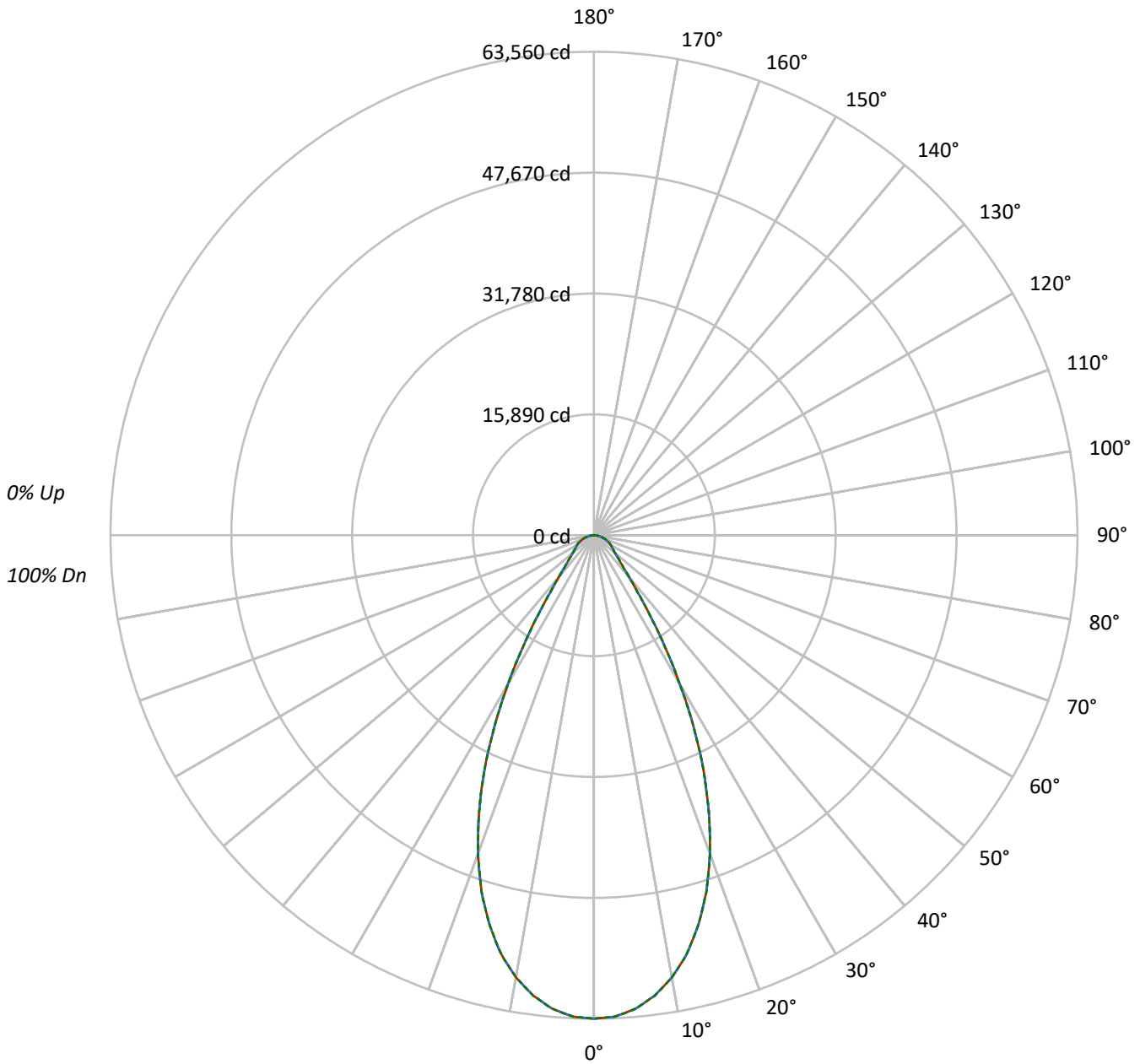
Summary

Lumens per Lamp: N/A
Luminaire Lumens: 54466.0 lumens
Efficiency: N/A
Efficacy: 184.0 lumens/watt
Spacing Criteria (0/90/45): 0.82 / 0.82 / 0.8
Luminous Opening: Circular (Dia: 1.71' x H: 0')
CIE Type: Direct

Input Watts (W): 296
Input Voltage (V): NR
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P1431883
CATALOG NUMBER: EHBR1-54-UNV-N-L840

Luminous Intensity Polar Plot



— 0°-180° - - 45°-225° - - - 90°-270°



TEST NUMBER: P1431883
 CATALOG NUMBER: EHBR1-54-UNV-N-L840

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

| | | | | | | | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| RF | 20 | | | | 20 | | | | 20 | | | | 20 | | | | 20 | | | | |
| RC | 80 | | | | 70 | | | | 50 | | | | 30 | | | | 10 | | | 0 | |
| RW | 70 | 50 | 30 | 10 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 | 0 |
| RCR | | | | | | | | | | | | | | | | | | | | | |
| 0 | 119 | 119 | 119 | 119 | 116 | 116 | 116 | 116 | 111 | 111 | 111 | 106 | 106 | 106 | 102 | 102 | 102 | 102 | 102 | 102 | 100 |
| 1 | 112 | 109 | 106 | 104 | 110 | 107 | 104 | 102 | 103 | 101 | 99 | 99 | 97 | 96 | 96 | 94 | 93 | 96 | 94 | 93 | 91 |
| 2 | 106 | 100 | 96 | 92 | 104 | 98 | 94 | 91 | 95 | 92 | 89 | 92 | 89 | 87 | 89 | 87 | 85 | 89 | 87 | 85 | 83 |
| 3 | 100 | 92 | 87 | 82 | 98 | 91 | 86 | 82 | 88 | 84 | 80 | 86 | 82 | 79 | 84 | 80 | 78 | 84 | 80 | 78 | 76 |
| 4 | 94 | 86 | 80 | 75 | 92 | 85 | 79 | 74 | 82 | 77 | 74 | 80 | 76 | 73 | 78 | 75 | 72 | 78 | 75 | 72 | 70 |
| 5 | 89 | 80 | 74 | 69 | 87 | 79 | 73 | 68 | 77 | 72 | 68 | 75 | 71 | 67 | 74 | 70 | 67 | 74 | 70 | 67 | 65 |
| 6 | 85 | 75 | 68 | 64 | 83 | 74 | 68 | 63 | 72 | 67 | 63 | 71 | 66 | 63 | 70 | 65 | 62 | 70 | 65 | 62 | 61 |
| 7 | 80 | 70 | 64 | 59 | 79 | 70 | 63 | 59 | 68 | 63 | 59 | 67 | 62 | 58 | 66 | 61 | 58 | 66 | 61 | 58 | 57 |
| 8 | 76 | 66 | 60 | 55 | 75 | 66 | 59 | 55 | 64 | 59 | 55 | 63 | 58 | 55 | 62 | 58 | 55 | 62 | 58 | 55 | 53 |
| 9 | 73 | 62 | 56 | 52 | 72 | 62 | 56 | 52 | 61 | 56 | 52 | 60 | 55 | 52 | 59 | 55 | 51 | 59 | 55 | 51 | 50 |
| 10 | 69 | 59 | 53 | 49 | 68 | 59 | 53 | 49 | 58 | 52 | 49 | 57 | 52 | 49 | 56 | 52 | 48 | 56 | 52 | 48 | 47 |

AVERAGE LUMINANCE (cd/sqm):

| | 0° | 45° | 90° |
|-----|--------|--------|--------|
| 0° | 298483 | 298483 | 298483 |
| 5° | 294597 | 294597 | 294597 |
| 10° | 281447 | 281447 | 281447 |
| 15° | 257805 | 257805 | 257805 |
| 20° | 222692 | 222692 | 222692 |
| 25° | 176484 | 176484 | 176484 |
| 30° | 122081 | 122081 | 122081 |
| 35° | 73157 | 73157 | 73157 |
| 40° | 43712 | 43712 | 43712 |
| 45° | 31732 | 31732 | 31732 |
| 50° | 26430 | 26430 | 26430 |
| 55° | 24410 | 24410 | 24410 |
| 60° | 23845 | 23845 | 23845 |
| 65° | 23363 | 23363 | 23363 |
| 70° | 22569 | 22569 | 22569 |
| 75° | 21644 | 21644 | 21644 |
| 80° | 19999 | 19999 | 19999 |
| 85° | 16482 | 16482 | 16482 |

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 31732 cd/sqm



TEST NUMBER: P1431883
 CATALOG NUMBER: EHBR1-54-UNV-N-L840

ZONAL LUMENS:

| Zone | Lumens | % Fixture |
|-----------|---------|-----------|
| 0°-10° | 5854.9 | 10.7 |
| 10°-20° | 14696.7 | 27.0 |
| 20°-30° | 15366.9 | 28.2 |
| 30°-40° | 8326.2 | 15.3 |
| 40°-50° | 3830.5 | 7.0 |
| 50°-60° | 2699.4 | 5.0 |
| 60°-70° | 2077.4 | 3.8 |
| 70°-80° | 1259.4 | 2.3 |
| 80°-90° | 354.6 | 0.7 |
| 90°-100° | 0.0 | 0.0 |
| 100°-110° | 0.0 | 0.0 |
| 110°-120° | 0.0 | 0.0 |
| 120°-130° | 0.0 | 0.0 |
| 130°-140° | 0.0 | 0.0 |
| 140°-150° | 0.0 | 0.0 |
| 150°-160° | 0.0 | 0.0 |
| 160°-170° | 0.0 | 0.0 |
| 170°-180° | 0.0 | 0.0 |
| <hr/> | | |
| 0°-30° | 35918.5 | 65.9 |
| 0°-40° | 44244.7 | 81.2 |
| 0°-60° | 50774.6 | 93.2 |
| 0°-90° | 54466.0 | 100.0 |
| 90°-120° | 0.0 | 0.0 |
| 90°-150° | 0.0 | 0.0 |
| 90°-180° | 0.0 | 0.0 |
| 0°-180° | 54466.0 | 100.0 |

CANDELA DISTRIBUTION:

| | 0° | 22.5° | 45° | 67.5° | 90° | Flux |
|-----|-------|-------|-------|-------|-------|-------|
| 0° | 63560 | 63560 | 63560 | 63560 | 63560 | |
| 5° | 62494 | 62494 | 62494 | 62494 | 62494 | 5855 |
| 15° | 53027 | 53027 | 53027 | 53027 | 53027 | 14697 |
| 25° | 34060 | 34060 | 34060 | 34060 | 34060 | 15367 |
| 35° | 12761 | 12761 | 12761 | 12761 | 12761 | 8326 |
| 45° | 4778 | 4778 | 4778 | 4778 | 4778 | 3830 |
| 55° | 2981 | 2981 | 2981 | 2981 | 2981 | 2699 |
| 65° | 2102 | 2102 | 2102 | 2102 | 2102 | 2077 |
| 75° | 1193 | 1193 | 1193 | 1193 | 1193 | 1259 |
| 85° | 306 | 306 | 306 | 306 | 306 | 355 |
| 90° | 2 | 2 | 2 | 2 | 2 | |



TEST NUMBER: P1431883
 CATALOG NUMBER: EHBR1-54-UNV-N-L840

CANDELA DISTRIBUTION (FULL):

| | 0° | 22.5° | 45° | 67.5° | 90° |
|-------|---------|---------|---------|---------|---------|
| 0° | 63559.8 | 63559.8 | 63559.8 | 63559.8 | 63559.8 |
| 2.5° | 63334.5 | 63334.5 | 63334.5 | 63334.5 | 63334.5 |
| 5° | 62493.6 | 62493.6 | 62493.6 | 62493.6 | 62493.6 |
| 7.5° | 61058.1 | 61058.1 | 61058.1 | 61058.1 | 61058.1 |
| 10° | 59021.6 | 59021.6 | 59021.6 | 59021.6 | 59021.6 |
| 12.5° | 56389.6 | 56389.6 | 56389.6 | 56389.6 | 56389.6 |
| 15° | 53027.2 | 53027.2 | 53027.2 | 53027.2 | 53027.2 |
| 17.5° | 49126.2 | 49126.2 | 49126.2 | 49126.2 | 49126.2 |
| 20° | 44560.8 | 44560.8 | 44560.8 | 44560.8 | 44560.8 |
| 22.5° | 39477.8 | 39477.8 | 39477.8 | 39477.8 | 39477.8 |
| 25° | 34059.9 | 34059.9 | 34059.9 | 34059.9 | 34059.9 |
| 27.5° | 28316.1 | 28316.1 | 28316.1 | 28316.1 | 28316.1 |
| 30° | 22513.5 | 22513.5 | 22513.5 | 22513.5 | 22513.5 |
| 32.5° | 17278.4 | 17278.4 | 17278.4 | 17278.4 | 17278.4 |
| 35° | 12761.0 | 12761.0 | 12761.0 | 12761.0 | 12761.0 |
| 37.5° | 9369.6 | 9369.6 | 9369.6 | 9369.6 | 9369.6 |
| 40° | 7130.4 | 7130.4 | 7130.4 | 7130.4 | 7130.4 |
| 42.5° | 5717.5 | 5717.5 | 5717.5 | 5717.5 | 5717.5 |
| 45° | 4778.0 | 4778.0 | 4778.0 | 4778.0 | 4778.0 |
| 47.5° | 4101.0 | 4101.0 | 4101.0 | 4101.0 | 4101.0 |
| 50° | 3617.7 | 3617.7 | 3617.7 | 3617.7 | 3617.7 |
| 52.5° | 3264.7 | 3264.7 | 3264.7 | 3264.7 | 3264.7 |
| 55° | 2981.4 | 2981.4 | 2981.4 | 2981.4 | 2981.4 |
| 57.5° | 2751.5 | 2751.5 | 2751.5 | 2751.5 | 2751.5 |
| 60° | 2538.8 | 2538.8 | 2538.8 | 2538.8 | 2538.8 |
| 62.5° | 2326.1 | 2326.1 | 2326.1 | 2326.1 | 2326.1 |
| 65° | 2102.5 | 2102.5 | 2102.5 | 2102.5 | 2102.5 |
| 67.5° | 1874.5 | 1874.5 | 1874.5 | 1874.5 | 1874.5 |
| 70° | 1643.7 | 1643.7 | 1643.7 | 1643.7 | 1643.7 |
| 72.5° | 1419.2 | 1419.2 | 1419.2 | 1419.2 | 1419.2 |
| 75° | 1192.9 | 1192.9 | 1192.9 | 1192.9 | 1192.9 |
| 77.5° | 971.2 | 971.2 | 971.2 | 971.2 | 971.2 |
| 80° | 739.5 | 739.5 | 739.5 | 739.5 | 739.5 |
| 82.5° | 517.7 | 517.7 | 517.7 | 517.7 | 517.7 |
| 85° | 305.9 | 305.9 | 305.9 | 305.9 | 305.9 |
| 87.5° | 109.5 | 109.5 | 109.5 | 109.5 | 109.5 |
| 90° | 1.8 | 1.8 | 1.8 | 1.8 | 1.8 |



TEST NUMBER: P1431883
 CATALOG NUMBER: EHBR1-54-UNV-N-L840

CIE UGR TABLE:

| Reflectances: | | | | | | | | | | | |
|-----------------|------|------------------|-------|-------|-------|-------|----------------|-------|-------|-------|-------|
| Ceiling | | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 | 0.7 | 0.7 | 0.5 | 0.5 | 0.3 |
| Wall | | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 | 0.5 | 0.3 | 0.5 | 0.3 | 0.3 |
| Reference plane | | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 | 0.2 |
| Room dimensions | | Viewed crosswise | | | | | Viewed endwise | | | | |
| X=2H | Y=2H | 19.71 | 20.87 | 20.08 | 21.19 | 21.50 | 19.71 | 20.87 | 20.08 | 21.19 | 21.50 |
| | 3H | 21.59 | 22.62 | 21.97 | 22.95 | 23.32 | 21.59 | 22.62 | 21.97 | 22.95 | 23.32 |
| | 4H | 22.32 | 23.28 | 22.72 | 23.63 | 24.02 | 22.32 | 23.28 | 22.72 | 23.63 | 24.02 |
| | 6H | 22.86 | 23.74 | 23.28 | 24.12 | 24.51 | 22.86 | 23.74 | 23.28 | 24.12 | 24.51 |
| | 8H | 23.03 | 23.86 | 23.46 | 24.26 | 24.66 | 23.03 | 23.86 | 23.46 | 24.26 | 24.66 |
| | 12H | 23.13 | 23.92 | 23.56 | 24.31 | 24.74 | 23.13 | 23.92 | 23.56 | 24.31 | 24.74 |
| 4H | 2H | 20.31 | 21.27 | 20.71 | 21.62 | 22.01 | 20.31 | 21.27 | 20.71 | 21.62 | 22.01 |
| | 3H | 22.39 | 23.18 | 22.80 | 23.59 | 23.99 | 22.39 | 23.18 | 22.80 | 23.59 | 23.99 |
| | 4H | 23.24 | 23.95 | 23.68 | 24.37 | 24.82 | 23.24 | 23.95 | 23.68 | 24.37 | 24.82 |
| | 6H | 23.92 | 24.53 | 24.38 | 24.98 | 25.45 | 23.92 | 24.53 | 24.38 | 24.98 | 25.45 |
| | 8H | 24.13 | 24.70 | 24.60 | 25.15 | 25.62 | 24.13 | 24.70 | 24.60 | 25.15 | 25.62 |
| | 12H | 24.26 | 24.76 | 24.75 | 25.25 | 25.72 | 24.26 | 24.76 | 24.75 | 25.25 | 25.72 |
| 8H | 4H | 23.53 | 24.10 | 24.00 | 24.55 | 25.02 | 23.53 | 24.10 | 24.00 | 24.55 | 25.02 |
| | 6H | 24.33 | 24.79 | 24.84 | 25.29 | 25.78 | 24.33 | 24.79 | 24.84 | 25.29 | 25.78 |
| | 8H | 24.63 | 25.04 | 25.15 | 25.55 | 26.05 | 24.63 | 25.04 | 25.15 | 25.55 | 26.05 |
| | 12H | 24.84 | 25.20 | 25.36 | 25.69 | 26.27 | 24.84 | 25.20 | 25.36 | 25.69 | 26.27 |
| 12H | 4H | 23.54 | 24.04 | 24.03 | 24.53 | 25.00 | 23.54 | 24.04 | 24.03 | 24.53 | 25.00 |
| | 6H | 24.38 | 24.79 | 24.91 | 25.31 | 25.80 | 24.38 | 24.79 | 24.91 | 25.31 | 25.80 |
| | 8H | 24.73 | 25.09 | 25.25 | 25.58 | 26.16 | 24.73 | 25.09 | 25.25 | 25.58 | 26.16 |

LM-79-2019: Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Report Prepared for

Cooper Lighting Solutions

Metalux

Report Number: SP1-2506-472-1

Test Date: 07/30/2025

Luminaire Tested: EHBR-60-L840-N

Data in this report applies to families of products including EHBR-60-L840-N

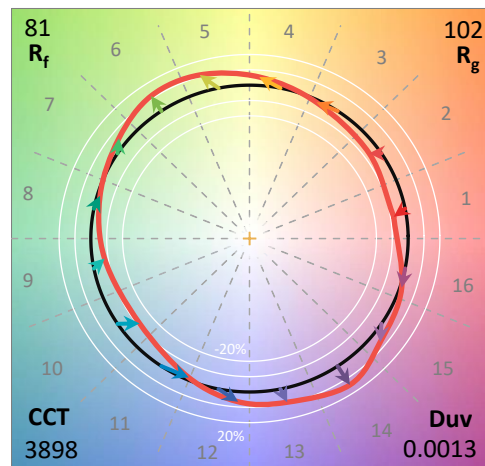
Test Information

Test Method: LM-79-2019
 Report Number: SP1-2506-472-1
 Test Lab: COOPER LIGHTING SOLUTIONS
 Photometer: SP1 - 76IN SPHERE
 Measurement Geometry: 4π
 Issue Date: 08/05/2025
 Manufacturer: COOPER LIGHTING SOLUTIONS
 Product Line: Metalux
 Catalog Number: **EHBR-60-L840-N**
 Description: Elevate Round Highbay at, 60000 lumens, 4000K 80CRI LEDs with N lens

Spectral Parameters

CCT (K): 3898
 CIE u': 0.2263
 CIE v': 0.5052
 Duv: 0.0013
 CIE x: 0.3861
 CIE y: 0.3831
 CIE z: 0.2308
 Peak Wavelength (nm): 630
 Dominant Wavelength (nm): 578
 Purity: 30.85729
 Rf: 80.7
 Rg: 102.1

| | | | |
|-----------|------|------|------|
| CRI (Ra): | 82.1 | | |
| R1: | 84.4 | R9: | 38.5 |
| R2: | 83.5 | R10: | 58.9 |
| R3: | 80.8 | R11: | 83.6 |
| R4: | 83.9 | R12: | 54.2 |
| R5: | 82.1 | R13: | 82.8 |
| R6: | 77.3 | R14: | 88.2 |
| R7: | 86.4 | R15: | 81.2 |
| R8: | 78.3 | | |



Test Conditions

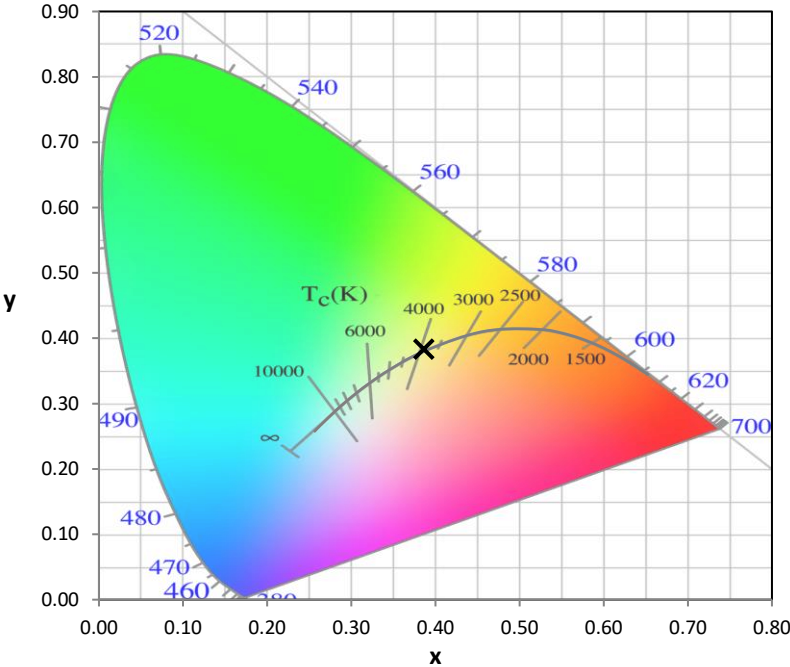
Stabilization Time: 42M
 Operation Time: 1H 42M
 Sphere Temperature (°C): 25.0

REPORT NUMBER: SP1-2506-472-1

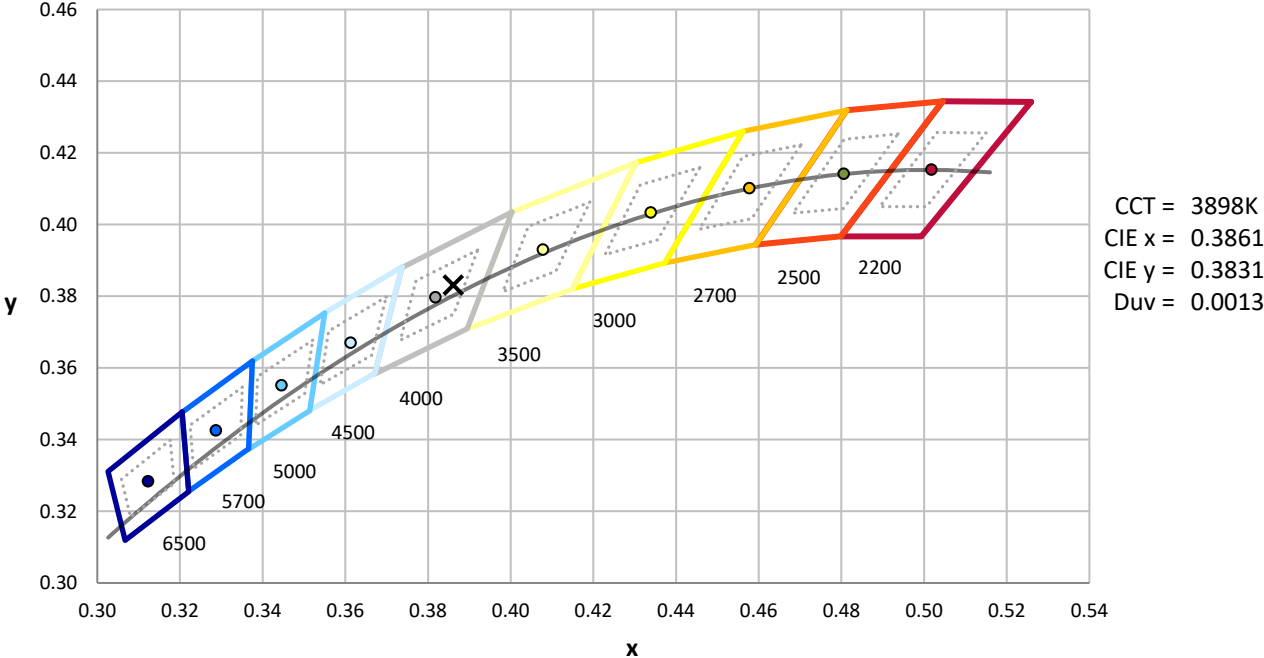
| Measurement and Test Equipment | | | |
|--------------------------------|-----------------------|------------------|----------------------|
| Instrument | Identification Number | Calibration Date | Calibration Due Date |
| Photometer | 76INCH SPHERE IN0058 | 6/16/2025 | 12/16/2025 |
| Power Meter | XITRON INXT2011004 | 1/21/2025 | 1/21/2026 |
| AC Power Source | CHROMA 61603 IN0063 | 10/22/2024 | 10/22/2025 |
| DC Power Source | AGILENT E3634A IN0208 | 10/22/2024 | 10/22/2025 |
| Sphere Thermometer | ONSET IN0085 | 10/22/2024 | 10/22/2025 |
| Room Thermometer | ONSET IN0046 | 10/22/2024 | 10/22/2025 |

REPORT NUMBER: SP1-2506-472-1

CIE 1931 Chromaticity Diagram



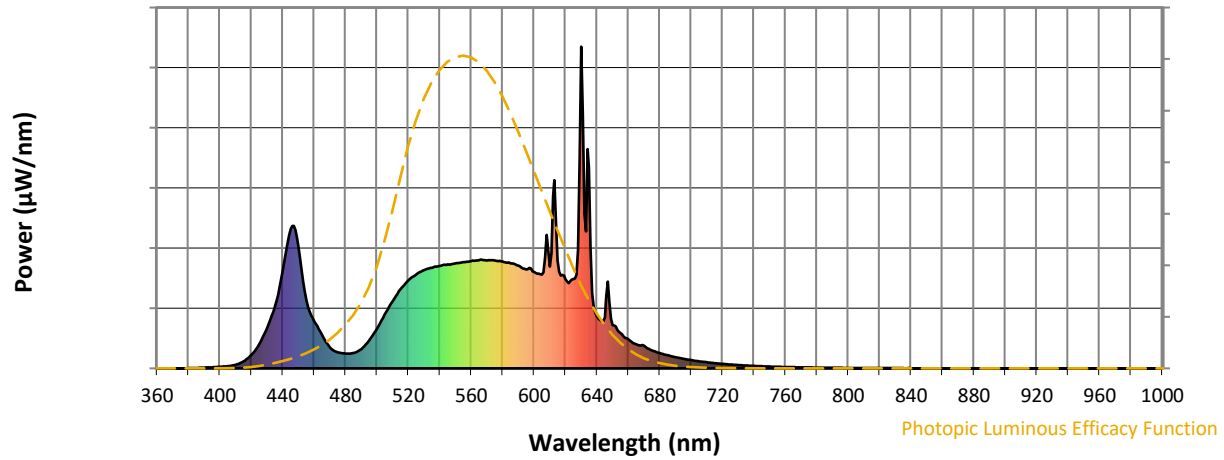
CIE 1931 Chromaticity Diagram with 2017 ANSI 7-Step and 4-Step Quadrangles



Point lies inside the ANSI 4000K 4-step quadrangle

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Photopic Flux vs. Wavelength

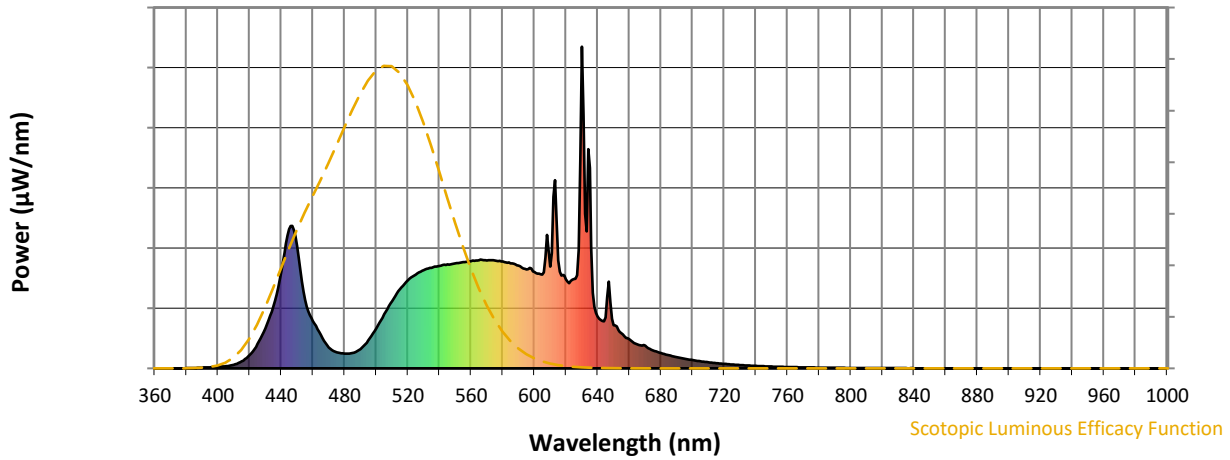


Photopic Lumens: NR

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 60 | NR | 620 | 277 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 87 | NR | 625 | 278 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 124 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 168 | NR | 635 | 623 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 209 | NR | 640 | 162 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 246 | NR | 645 | 158 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 273 | NR | 650 | 134 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 292 | NR | 655 | 109 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 305 | NR | 660 | 91 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 313 | NR | 665 | 75 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 319 | NR | 670 | 70 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 323 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 42 | NR | 550 | 326 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 330 | NR | 685 | 41 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 125 | NR | 560 | 333 | NR | 690 | 35 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 193 | NR | 565 | 336 | NR | 695 | 30 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 302 | NR | 570 | 336 | NR | 700 | 26 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 432 | NR | 575 | 335 | NR | 705 | 22 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 380 | NR | 580 | 332 | NR | 710 | 19 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 213 | NR | 585 | 326 | NR | 715 | 16 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 147 | NR | 590 | 319 | NR | 720 | 14 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 307 | NR | 725 | 12 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 65 | NR | 600 | 299 | NR | 730 | 10 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 50 | NR | 605 | 291 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 46 | NR | 610 | 317 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 47 | NR | 615 | 336 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-1

Scotopic Flux vs. Wavelength



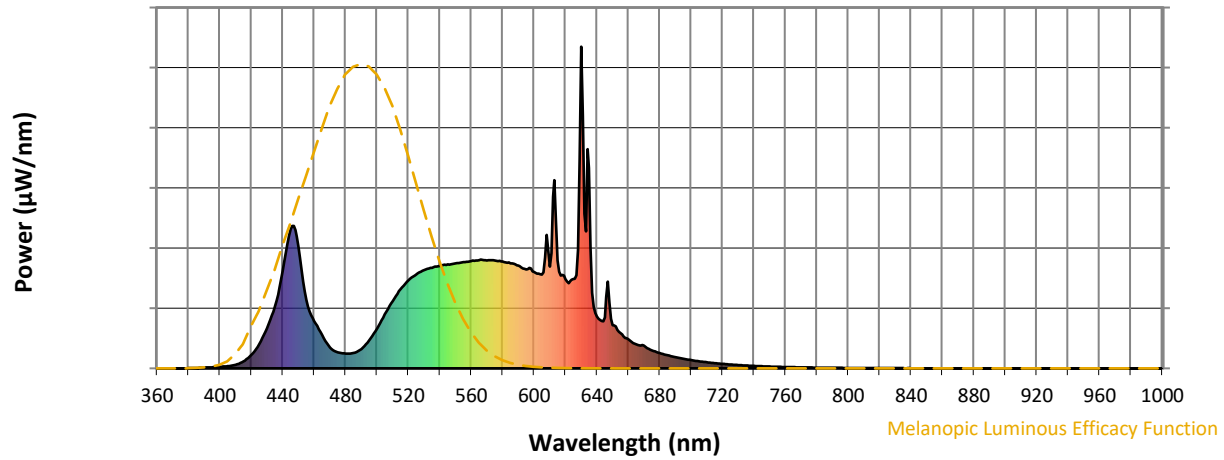
Scotopic Lumens: NR

S/P: 1.55

| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 60 | NR | 620 | 277 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 87 | NR | 625 | 278 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 124 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 168 | NR | 635 | 623 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 209 | NR | 640 | 162 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 246 | NR | 645 | 158 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 273 | NR | 650 | 134 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 292 | NR | 655 | 109 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 305 | NR | 660 | 91 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 313 | NR | 665 | 75 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 319 | NR | 670 | 70 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 323 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 42 | NR | 550 | 326 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 330 | NR | 685 | 41 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 125 | NR | 560 | 333 | NR | 690 | 35 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 193 | NR | 565 | 336 | NR | 695 | 30 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 302 | NR | 570 | 336 | NR | 700 | 26 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 432 | NR | 575 | 335 | NR | 705 | 22 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 380 | NR | 580 | 332 | NR | 710 | 19 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 213 | NR | 585 | 326 | NR | 715 | 16 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 147 | NR | 590 | 319 | NR | 720 | 14 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 307 | NR | 725 | 12 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 65 | NR | 600 | 299 | NR | 730 | 10 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 50 | NR | 605 | 291 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 46 | NR | 610 | 317 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 47 | NR | 615 | 336 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

REPORT NUMBER: SP1-2506-472-1

Melanopic Flux vs. Wavelength



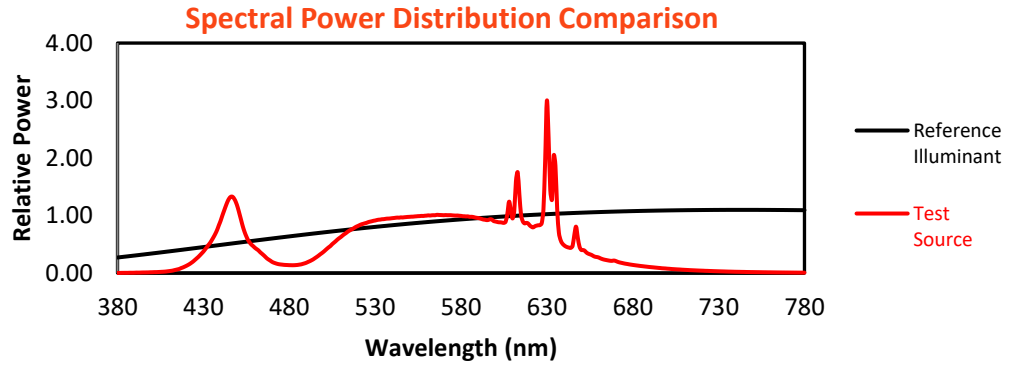
Melanopic Lumens: NR

M/P: 2.99

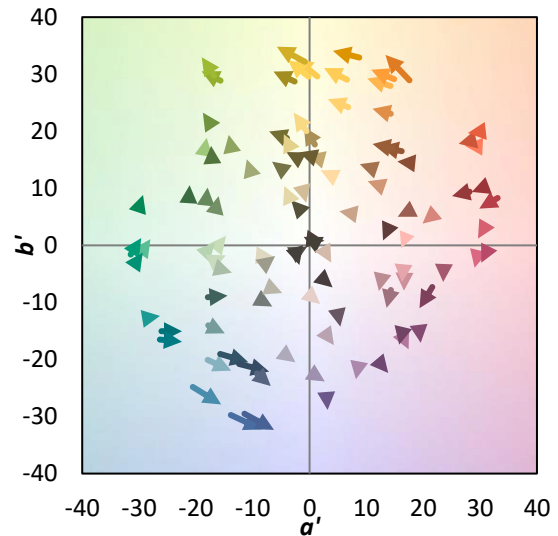
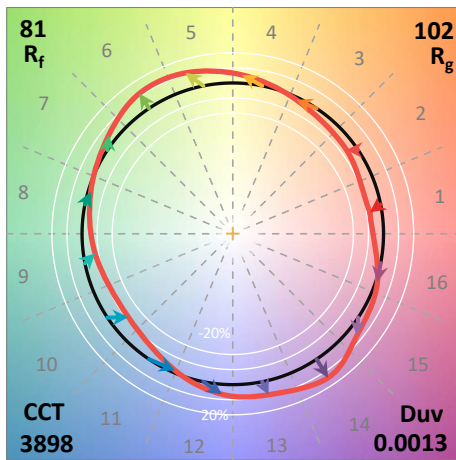
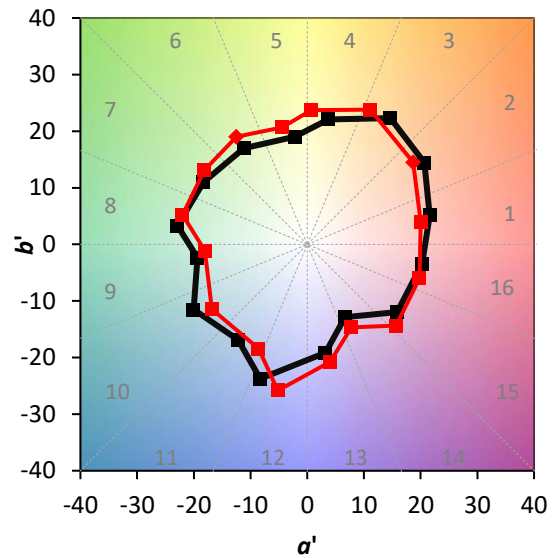
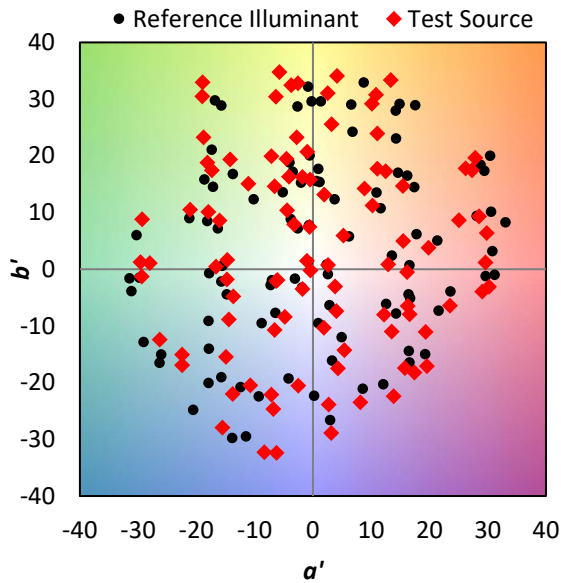
| λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) | λ (nm) | Power W [^] /nm | Lumens (φ/nm) |
|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|--------|--------------------------|---------------|
| 360 | 0 | NR | 490 | 60 | NR | 620 | 277 | NR | 750 | 6 | NR | 880 | 0 | NR |
| 365 | 0 | NR | 495 | 87 | NR | 625 | 278 | NR | 755 | 5 | NR | 885 | 0 | NR |
| 370 | 0 | NR | 500 | 124 | NR | 630 | 1000 | NR | 760 | 4 | NR | 890 | 0 | NR |
| 375 | 0 | NR | 505 | 168 | NR | 635 | 623 | NR | 765 | 4 | NR | 895 | 0 | NR |
| 380 | 1 | NR | 510 | 209 | NR | 640 | 162 | NR | 770 | 3 | NR | 900 | 0 | NR |
| 385 | 1 | NR | 515 | 246 | NR | 645 | 158 | NR | 775 | 3 | NR | 905 | 0 | NR |
| 390 | 2 | NR | 520 | 273 | NR | 650 | 134 | NR | 780 | 2 | NR | 910 | 0 | NR |
| 395 | 4 | NR | 525 | 292 | NR | 655 | 109 | NR | 785 | 2 | NR | 915 | 0 | NR |
| 400 | 5 | NR | 530 | 305 | NR | 660 | 91 | NR | 790 | 2 | NR | 920 | 0 | NR |
| 405 | 7 | NR | 535 | 313 | NR | 665 | 75 | NR | 795 | 2 | NR | 925 | 0 | NR |
| 410 | 11 | NR | 540 | 319 | NR | 670 | 70 | NR | 800 | 1 | NR | 930 | 0 | NR |
| 415 | 21 | NR | 545 | 323 | NR | 675 | 56 | NR | 805 | 1 | NR | 935 | 0 | NR |
| 420 | 42 | NR | 550 | 326 | NR | 680 | 47 | NR | 810 | 1 | NR | 940 | 0 | NR |
| 425 | 76 | NR | 555 | 330 | NR | 685 | 41 | NR | 815 | 1 | NR | 945 | 0 | NR |
| 430 | 125 | NR | 560 | 333 | NR | 690 | 35 | NR | 820 | 1 | NR | 950 | 0 | NR |
| 435 | 193 | NR | 565 | 336 | NR | 695 | 30 | NR | 825 | 1 | NR | 955 | 0 | NR |
| 440 | 302 | NR | 570 | 336 | NR | 700 | 26 | NR | 830 | 1 | NR | 960 | 0 | NR |
| 445 | 432 | NR | 575 | 335 | NR | 705 | 22 | NR | 835 | 1 | NR | 965 | 0 | NR |
| 450 | 380 | NR | 580 | 332 | NR | 710 | 19 | NR | 840 | 0 | NR | 970 | 0 | NR |
| 455 | 213 | NR | 585 | 326 | NR | 715 | 16 | NR | 845 | 0 | NR | 975 | 0 | NR |
| 460 | 147 | NR | 590 | 319 | NR | 720 | 14 | NR | 850 | 0 | NR | 980 | 0 | NR |
| 465 | 104 | NR | 595 | 307 | NR | 725 | 12 | NR | 855 | 0 | NR | 985 | 0 | NR |
| 470 | 65 | NR | 600 | 299 | NR | 730 | 10 | NR | 860 | 0 | NR | 990 | 0 | NR |
| 475 | 50 | NR | 605 | 291 | NR | 735 | 9 | NR | 865 | 0 | NR | 995 | 0 | NR |
| 480 | 46 | NR | 610 | 317 | NR | 740 | 8 | NR | 870 | 0 | NR | 1000 | 0 | NR |
| 485 | 47 | NR | 615 | 336 | NR | 745 | 7 | NR | 875 | 0 | NR | | | |

Summary

$R_f = 80.7$
 $R_g = 102.1$
 CIE $R_a = 82.1$
 $R_9 = 38.5$

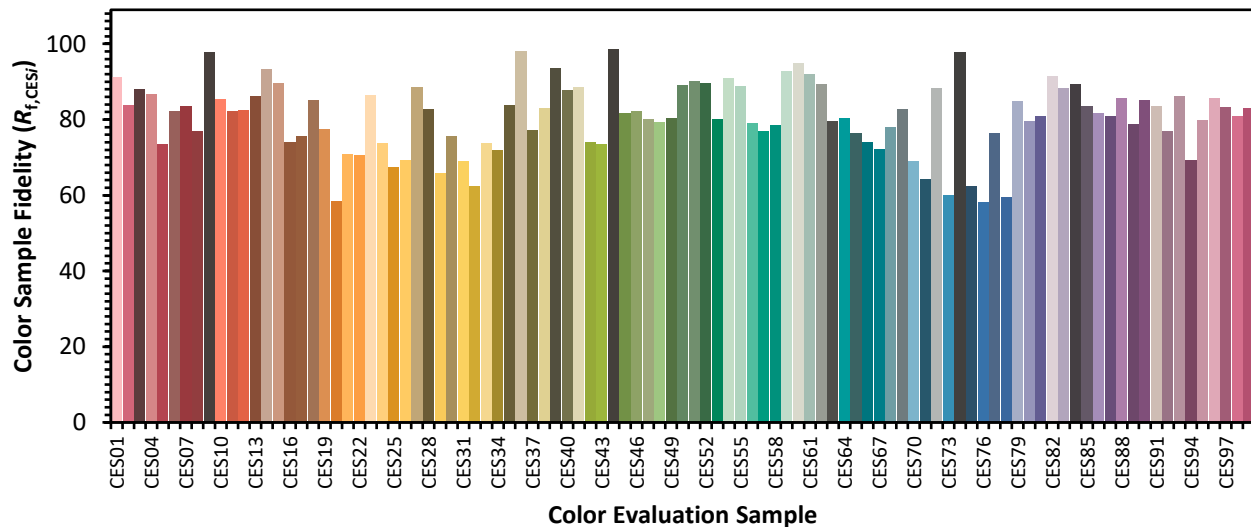


Color Vector Graphics

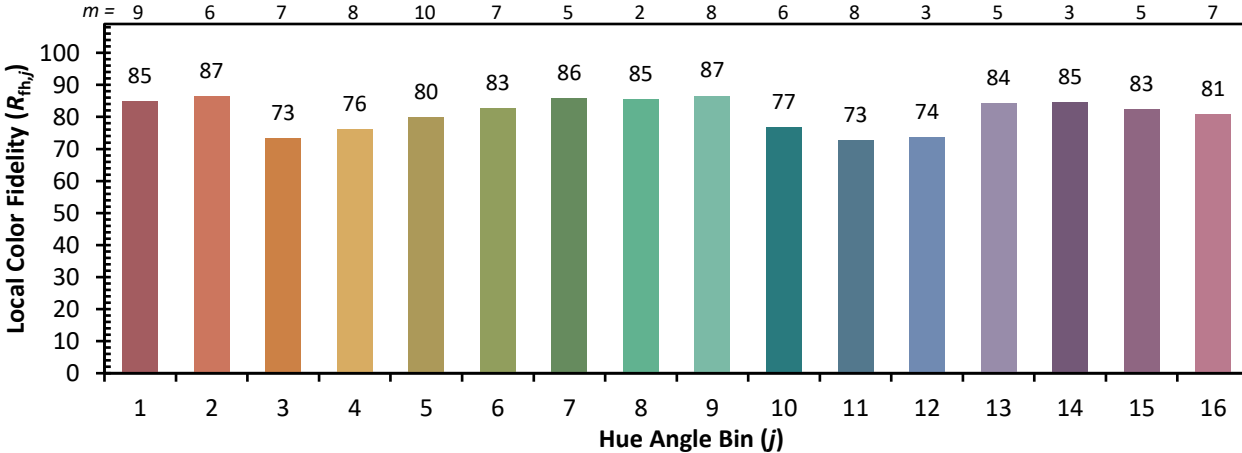
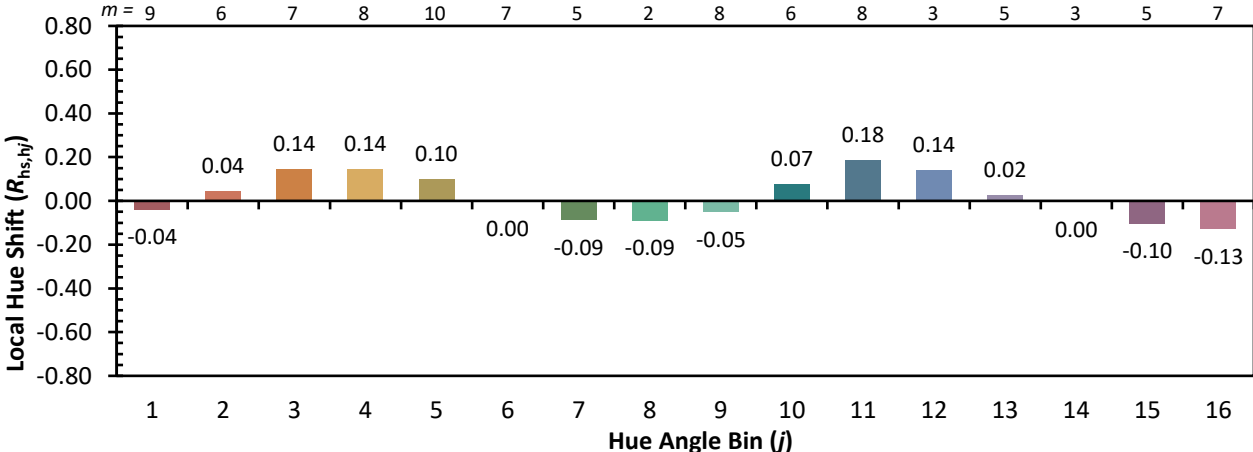
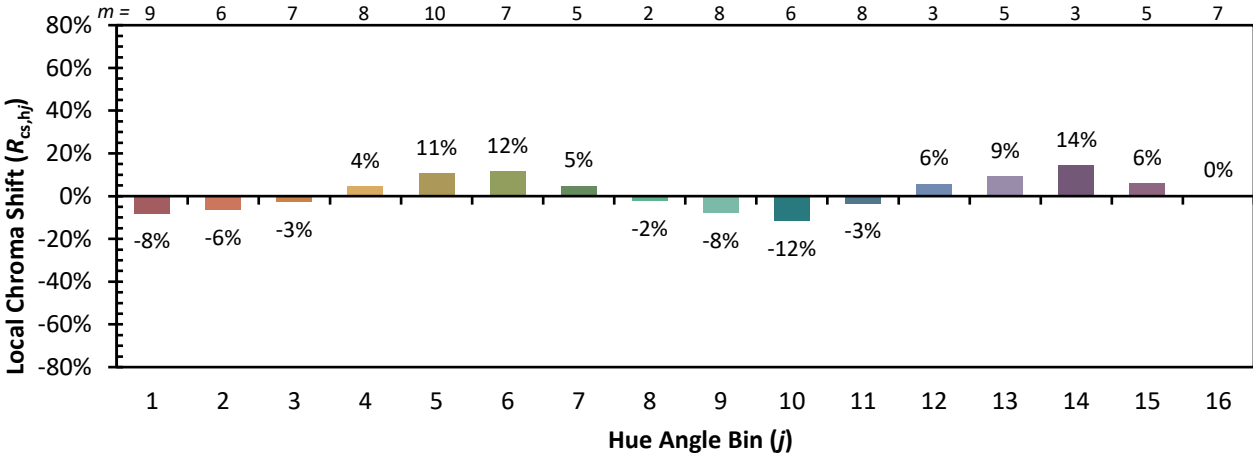


Individual Sample Fidelity Index ($R_{f,i}$)

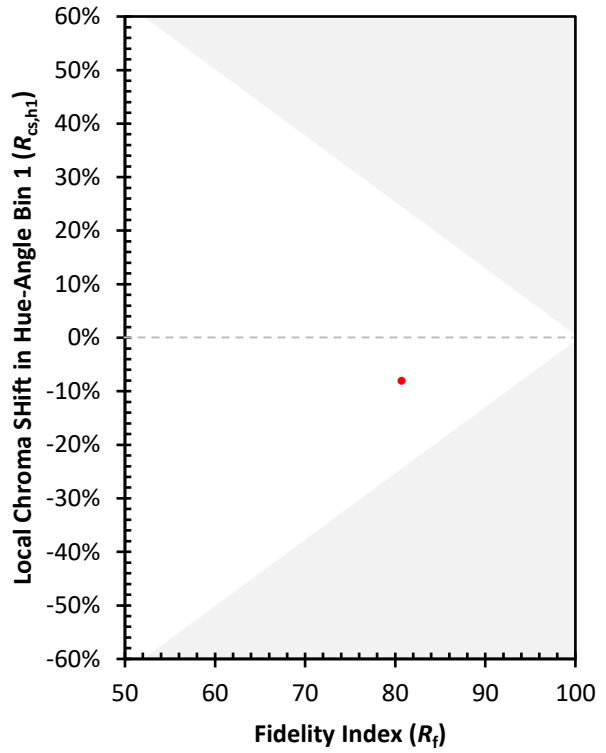
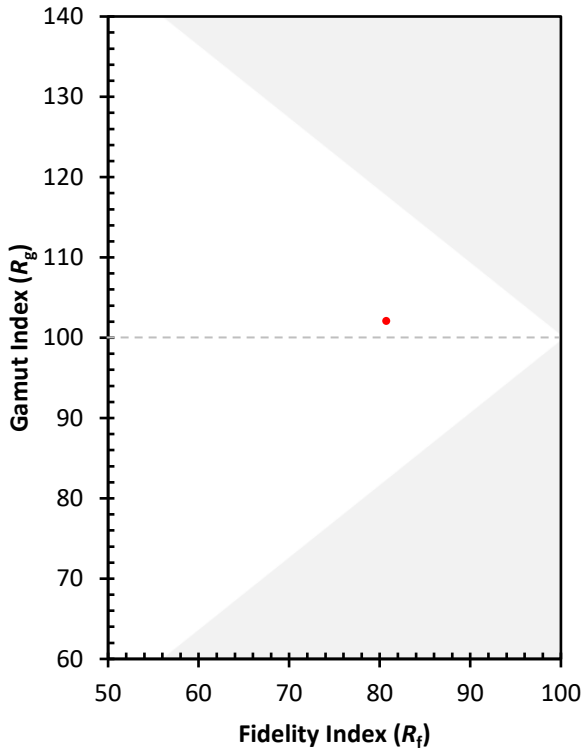
| | | | |
|------------|------------|------------|------------|
| CES01 = 85 | CES26 = 69 | CES51 = 90 | CES76 = 58 |
| CES02 = 61 | CES27 = 89 | CES52 = 90 | CES77 = 76 |
| CES03 = 31 | CES28 = 83 | CES53 = 80 | CES78 = 60 |
| CES04 = 69 | CES29 = 66 | CES54 = 91 | CES79 = 85 |
| CES05 = 48 | CES30 = 76 | CES55 = 89 | CES80 = 79 |
| CES06 = 50 | CES31 = 69 | CES56 = 79 | CES81 = 81 |
| CES07 = 41 | CES32 = 62 | CES57 = 77 | CES82 = 91 |
| CES08 = 40 | CES33 = 74 | CES58 = 79 | CES83 = 88 |
| CES09 = 29 | CES34 = 72 | CES59 = 93 | CES84 = 89 |
| CES10 = 74 | CES35 = 84 | CES60 = 95 | CES85 = 84 |
| CES11 = 57 | CES36 = 98 | CES61 = 92 | CES86 = 82 |
| CES12 = 63 | CES37 = 77 | CES62 = 89 | CES87 = 81 |
| CES13 = 43 | CES38 = 83 | CES63 = 80 | CES88 = 86 |
| CES14 = 74 | CES39 = 94 | CES64 = 80 | CES89 = 79 |
| CES15 = 71 | CES40 = 88 | CES65 = 77 | CES90 = 85 |
| CES16 = 47 | CES41 = 89 | CES66 = 74 | CES91 = 83 |
| CES17 = 49 | CES42 = 74 | CES67 = 72 | CES92 = 77 |
| CES18 = 56 | CES43 = 73 | CES68 = 78 | CES93 = 86 |
| CES19 = 71 | CES44 = 98 | CES69 = 83 | CES94 = 69 |
| CES20 = 65 | CES45 = 82 | CES70 = 69 | CES95 = 80 |
| CES21 = 86 | CES46 = 82 | CES71 = 64 | CES96 = 86 |
| CES22 = 78 | CES47 = 80 | CES72 = 88 | CES97 = 83 |
| CES23 = 91 | CES48 = 79 | CES73 = 60 | CES98 = 81 |
| CES24 = 90 | CES49 = 80 | CES74 = 98 | CES99 = 83 |
| CES25 = 71 | CES50 = 89 | CES75 = 62 | |



Color Rendition by Hue-Angle Bin



Measure Comparisons



(END OF REPORT)